

Patent
Serial No. 10/798,477
Agilent Docket No. 70030733-1

In the Claims:

1. (Currently amended) A light emitting diode (LED) display device comprising:
 - a substrate;
 - a plurality of walls disposed on the substrate, the plurality of walls forming a cavity, the cavity being filled with an encapsulant, the encapsulant not including fluorescent material;
 - an LED disposed on a first portion of the substrate within the cavity;
 - an electrical connection between the LED and a second portion of the substrate; and
 - a fluorescent material overlay at a top end of the cavity, wherein the fluorescent material overlay substantially fully converts all light emitted from the LED to fluorescent radiation.
2. (Original) A light emitting diode display device according to claim 1, wherein the fluorescent material overlay includes a layer of phosphor particles.
3. (Original) A light emitting diode display device according to claim 1, wherein the fluorescent material overlay has a substantially consistent thickness and includes a substantially uniform matrix of phosphor particles.
4. (Original) A light emitting diode display device according to claim 1, wherein the fluorescent material overlay includes a combination of two or more fluorescent material types.
5. (Original) A light emitting diode display device according to claim 1, wherein the fluorescent material overlay includes phosphor particles having a mean diameter within the range of 1 micrometer to 50 micrometer.

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6. (Original) A light emitting diode display device according to claim 1, wherein the fluorescent material overlay includes phosphor particles having a mean diameter within the range of 10 nanometer to 100 nanometer.
7. (Original) A light emitting diode display device according to claim 1, wherein the fluorescent material overlay includes organic dye.
8. (Currently amended) A light emitting diode (LED) display device comprising:
a substrate;
a plurality of walls disposed on the substrate, the plurality of walls forming a cavity;
an LED disposed on a first portion of the substrate within the cavity;
an electrical connection between the LED and a second portion of the substrate; and
a fluorescent material overlay at a top end of the cavity, the fluorescent material overlay having an area and including a plastic layer and a layer of fluorescent material disposed over only a portion of the area, wherein another portion of the area does not have any fluorescent material.
9. (Original) A light emitting diode display device according to claim 8, wherein the fluorescent material overlay has a substantially consistent thickness and includes a uniform matrix of phosphor particles.
10. (Original) A light emitting diode display device according to claim 8, wherein the fluorescent material overlay includes a combination of two or more fluorescent material types.
11. (Original) A light emitting diode display device according to claim 8, wherein the fluorescent material overlay includes phosphor particles having a mean diameter within the range of 1 micrometer to 50 micrometer.

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12. (Original) A light emitting diode display device according to claim 8, wherein the fluorescent material overlay includes phosphor particles having a mean diameter within the range of 10 nanometer to 100 nanometer.
13. (Original) A light emitting diode display device according to claim 8, wherein the fluorescent material overlay includes organic dye.
14. (Original) A light emitting diode (LED) display device comprising:
a substrate;
a plurality of cavities, each of the plurality of cavities formed within a plurality of walls disposed on the substrate;
a plurality of LEDs, each of the plurality of LEDs disposed within a separate one of the plurality of cavities, each of the plurality of LEDs disposed on a first portion of the substrate;
a plurality of electrical connections, each of the plurality of electrical connections connecting one of the plurality of LEDs to one or more respective second portions of the substrate; and
a fluorescent material overlay at a top end of the plurality of cavities.
15. (Original) A light emitting diode display device according to claim 14, wherein the fluorescent material overlay includes a layer of phosphor particles.
16. (Original) A light emitting diode display device according to claim 14, wherein the fluorescent material overlay has a substantially consistent thickness and includes a substantially uniform matrix of phosphor particles.
17. (Original) A light emitting diode display device according to claim 14, wherein the fluorescent material overlay includes phosphor particles having a mean diameter within the range of 1 micrometer to 50 micrometer.

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18. (Original) A light emitting diode display device according to claim 14, wherein the fluorescent material overlay includes phosphor particles having a mean diameter within the range of 10 nanometer to 100 nanometer.
19. (Original) A light emitting diode display device according to claim 14, wherein the fluorescent material overlay includes organic dye.
20. (Original) A light emitting diode display device according to claim 14, wherein the fluorescent material overlay include a plurality of fluorescent material types, and each of the plurality of fluorescent material types corresponds to a portion or portions of the plurality of cavities.